Exhibit 1

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UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

Aptalis Pharma US Inc., and Aptalis Pharma Canada, ULC, Plaintiffs, vs. Mylan Pharmaceuticals Inc. and Mylan Inc., Defendants.	Civil Action No. 13-4158 (MLC) (LHG) **Contains Highly Confidential/Attorneys' Eyes Only Information Subject to Protective Order** Date: June 16, 2015 Time: 9:30 a.m. Court: Hon. Mary L. Cooper

Aptalis's Opening Claim Construction Brief

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Defined Terms

"**'034 Patent**" refers to U.S. Patent No. 7,541,384.

"**'083 Patent**" refers to U.S. Patent No. 8,217,083.

"**Allen Decl**." refers to the May 2, 2014 Declaration of Loyd V. Allen, Jr. Ph.D., R.Ph., which Aptalis filed on May 2, 2014 (ECF No. 64-1). Aptalis incorporates the entire Allen Declaration into the brief as if set forth in full.

"**Aptalis Inventors**" collectively refers to all named inventors of Aptalis's asserted patents, including Carl Gauthier, Yvels Dumoulin, and David Powell.

"**Aptalis**" collectively refers to Plaintiffs Aptalis Pharma US Inc. and Aptalis Pharma Canada, ULC.

"**Asserted Patents**" collectively refers to Aptalis's '384 Patent and '083 Patent.

"**Ex. [1-30]**" refers to documents attached as exhibits to the Chevalier Declarations filed on May 2, 2014 (ECF Nos. 64-5 through 64-21) and on August 18, 2014 (ECF Nos. 90-4 through 90-15).

"**Mylan**" collectively refers to Defendants Mylan Pharmaceuticals Inc. and Mylan Inc. (Case No. 13-4158).

"**POSA**" refers to a person of ordinary skill in the art.

"**Responsive Allen Decl**." refers to the Responsive Declaration of Loyd V. Allen, Jr. Ph.D., R.Ph., which Aptalis filed on August 18, 2014 (ECF No. 90-1). Aptalis incorporates the entire Responsive Allen Declaration into the brief as if set forth in full.

"**Sandoz**" refers to defendant Sandoz Inc. (Case No. 13-4290).

"**UC**" refers to ulcerative colitis.

"**USP-NF**" and "**USP**" refer to the United States Pharmacopeia and The National Formulary.

In advance of the June 16, 2015 Claim Construction Hearing, Aptalis submits this updated Opening Claim Construction Brief, which replaces the brief Aptalis filed on May 2, 2014 (ECF No. 64). As explained below, this brief is consistent with Magistrate Judge Goodman's orders and rulings on the admissibility of various defenses and arguments.

Procedural Background and Rulings

The Claim Construction Hearing was postponed twice to provide Judge Goodman time to assist in resolving certain open issues, including the admissibility of various defenses:

- In late May 2014, Mylan and Sandoz told the Court they wanted to conduct discovery concerning a new defense—that portions of Aptalis's Asserted Patents are indefinite due to purported "data variability" reflected in certain tables and figures in the patents. Aptalis objected to the discovery because Mylan and Sandoz had not timely and properly raised this new defense by disclosing it (as the Patent Local Rules require) in their Preliminary Infringement Contentions ("PICs"). Aptalis pointed out that Mylan and Sandoz based their defense on information provided in the patent specifications, which Mylan and Sandoz had access to for years. The Court extended the schedule so Judge Goodman could address this issue.

- In late August 2014, Mylan and Sandoz filed a responsive claim construction brief in which they asserted numerous new indefiniteness arguments (including the data variability argument discussed above) that neither Mylan nor Sandoz had previously disclosed in their PICs. Mylan also argued that all claim terms containing the word "about" were indefinite, even though Judge Goodman had previously denied Mylan's motion for leave to amend its PICs to include this defense. Aptalis asked this Court to disregard the new indefiniteness arguments. This Court suspended claim construction so Judge Goodman could address these issues.

On April 10, 2015, Judge Goodman denied Mylan's request for leave to amend its PICs as to all but one of the indefiniteness defenses it sought to assert against the Asserted Patents:

- Judge Goodman disallowed Mylan's assertion that the dissolution/release rate limitations in the patents are indefinite due to purported data variability.[1]

[1] 4/10/15 Order at 13-14, ECF No. 131 (rejecting proposed amendments at pages 49-50 of Mylan's Proposed Amended PICs).

- Judge Goodman disallowed Mylan's assertion that the dissolution/release rate limitations are also indefinite due to a purported lack of detail in the patents about the scope of the dissolution/release rate limitations and how to measure dissolution. Among other things, the Court rejected proposed amendments contending the patents failed to provide adequate information concerning how to place the dosage form into the dissolution apparatus, concerning which particular method one should use to measure the amount of mesalamine released from the suppository product over time (*i.e.,* rate of release), and how one should perform that method, including how to measure the rate of mesalamine released in the presence of melted fat.[2]

- Judge Goodman disallowed Mylan's assertion that the dissolution/release rate limitations are also indefinite due to a purported lack of direction as to how much mesalamine is released "within" specified periods of time and how to determine the starting point at which the release of mesalamine begins.[3]

- Judge Goodman disallowed Mylan's assertion that the tap density limitation in the patents is indefinite because the recited tap density range does not provide the public with reasonable certainty about what is claimed and what is still open to the public. In particular, Judge Goodman rejected Mylan's proposed arguments that "tap density" is indefinite because there is "some error" associated with the measurement of tap density; because the patentee purportedly told the patent examiner that tap densities below 580 grams per liter and above 910 grams per liter do not fall within the scope of the claimed inventions; and because the dependent claims do not clarify or narrow the tap density limitation recited in the independent claims.[4]

- Judge Goodman disallowed Mylan's assertion that claim terms, including specifically the tap density and amount of mesalamine limitations are indefinite because of a purported overlap with the CANASA® product.[5]

- Judge Goodman reiterated her previous finding that Mylan cannot assert a defense that claim terms containing the word "about" are indefinite.[6]

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[2] 4/10/15 Order at 13-14, ECF No. 131 (rejecting proposed amendments at pages 50-51 of Mylan's Proposed Amended PICs).

[3] 4/10/15 Order at 13-14, ECF No. 131 (rejecting proposed amendments at pages 51-52 of Mylan's Proposed Amended PICs).

[4] 4/10/15 Order at 15-16, ECF No. 131 (rejecting proposed amendments at pages 53-54 of Mylan's Proposed Amended PICs).

[5] 4/10/15 Order at 16, ECF No. 131 (rejecting proposed amendments at pages 54-55 of Mylan's Proposed Amended PICs).

[6] 6/20/14 Order, ECF No. 75 (disallowing "about" indefiniteness defense); 4/10/15 Order at 16-17 & 19-20, ECF No. 131

During an April 23, 2015 status conference, Judge Goodman directed the parties to file new claim construction briefs, and specifically reminded Mylan that its papers must not argue any of the disallowed defenses. Judge Goodman further instructed the parties not to introduce new arguments.

Other recent developments have further narrowed the scope of the claim construction issues. First, Judge Goodman directed that Aptalis's cases against Mylan and Sandoz would proceed on separate tracks at this time. [redacted]

In view of the above, Aptalis hereby submits this updated Opening Claim Construction Brief, which effectively replaces the brief Aptalis filed on May 2, 2014 (ECF No. 64).[8] Per Judge Goodman's instructions, this brief contains no new arguments or any discussion about Mylan's disallowed indefiniteness defenses. Furthermore, this brief does not address any claim construction positions uniquely taken by Sandoz, [redacted] In the interest of completeness and judicial efficiency, Aptalis has presented in this brief some discussion it previously included in its Responsive Brief (ECF No. 91).

I. Preliminary Statement.

Aptalis's Asserted Patents relate to mesalamine rectal suppository drug products, characterized by a relatively high drug content ("drug load"). Using a high drug load of mesalamine allows for the delivery of an effective amount of the drug with smaller

[7] [redacted]

[8] To spare the Court of repeated filings, Aptalis is relying on the declarations (and attached exhibits) it filed on May 2, 2014 and August 18, 2014. For the Court's convenience and easy reference, Aptalis's citations in this brief to those previously filed materials includes the ECF Number.

amounts of inactive ingredients, such as hard fat. This approach provides millions of Americans suffering from debilitating colon diseases a more comfortable and therapeutically effective form of treatment, and provides drug makers a more flexible manufacturing process.

At the time of the inventions, high drug load suppositories were a goal of persons of ordinary skill in the art (POSAs). But POSAs were not able to make high drug load suppositories with the desired therapeutic properties because of numerous manufacturing problems. The Aptalis Inventors overcame these problems.

To accomplish these objectives, the inventions stated in the Asserted Patents' claims recite suppositories with the mesalamine active ingredient having a "tap density" of about 600 to about 800 grams per liter and the suppository base material having, in some embodiments, a specified "ascending melting point." In addition to these requirements for the suppository ingredients, the claimed inventions also recite properties the suppositories must have when fully formed: they must have recited amounts of mesalamine, have drug loads within recited ranges, and/or release the recited amount of mesalamine under recited dissolution test conditions.

Now at issue is the meaning of numerous claim terms. It is a bedrock principle of claim construction that a court should construe patent terms according to their plain and ordinary meaning, as understood by a POSA in view of the patent claims and the specification.[9] Only Aptalis's proposed constructions are consistent with this principle. In disputing Aptalis's "plain and ordinary" constructions, Mylan either ignores the intrinsic record, ignores what POSAs would understand, or refuses to offer any construction at all—contending (wrongly) that the terms are too indefinite to even construe.

In this case, the parties have asked the Court to construe many disputed claim ***terms***. But the disputed ***issues*** are few. Nearly all the claim construction disputes hinge on Mylan's

[9] *See, e.g., Phillips v. AWH Corp,* 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc).

failure to acknowledge that: ❶ the intrinsic record incorporates pharmaceutical industry standards that supply additional guidance to POSAs regarding several claim limitations; ❷ the intrinsic record indicates that certain claimed properties are for raw ingredients before they are mixed and processed to form a suppository, as opposed to the finished suppository itself; and that ❸ indefiniteness is not an appropriate issue during claim construction and, in any event, Mylan has not met its burden of showing that any terms are indefinite.

❶ Mylan's analysis fails to account for industry standards that are part of the intrinsic record

Mylan alleges the claims and the specifications are not clear on how a POSA should measure certain ingredient or suppository properties to determine whether they satisfy the recited requirements. This contention ignores the industry standards on measuring and testing protocols set forth in the U.S. Pharmacopeia ("USP"), which are expressly incorporated by reference into the specifications of the Asserted Patents. POSAs would interpret the Asserted Patents consistent with the USP's monograph on mesalamine and the USP chapters relating to determining the tap density and melting point of pharmaceutical ingredients (*i.e.,* mesalamine and hard fat, respectively), and the release or dissolution rates of pharmaceutical products (*i.e.,* mesalamine rectal suppositories). In view of this, any suggestion by Mylan that Aptalis's proposed constructions are somehow inconsistent with the plain and ordinary meaning of the claim terms, or that the patents are so barren of needed detail that numerous claims cannot be construed, has no basis in reality and is contrary to the intrinsic record.

❷ Mylan wrongly contends the Asserted Patents do not clearly indicate when one should measure certain properties

Mylan alleges it is not apparent whether recited requirements for certain properties

(*e.g.,* tap density, ascending melting point) apply before or after suppository formation. Mylan's assertions are contrary to the intrinsic record. The claim language makes clear that some claim elements recite specifications for individual suppository ingredients ***before*** they are combined to form the suppository, and other elements recite specifications for the formed suppository. And if the claim language itself were not sufficiently clear (which it is), the patents themselves further emphasize that POSAs should measure the recited mesalamine and suppository base properties before suppository formation.

❸ Mylan has improperly attempted to inject indefiniteness into the claim construction process

Mylan's refusal to construe numerous claim terms because of their purported indefiniteness is both substantively and procedurally flawed. As for the merits, Mylan's extant indefiniteness claims do not withstand scrutiny,[10] especially in view of the USP's incorporation into the patent specifications. But the main problem for Mylan at this time in the litigation is that indefiniteness is not a valid issue ***during claim construction***. Numerous New Jersey courts have held that the Court should construe the claims first, and the parties can litigate at a later time if any terms, ***as properly construed***, are indefinite.

This Court should construe patent terms according to their plain and ordinary meaning, as understood by a POSA in view of the intrinsic record.[11] Aptalis's proposed definitions are the only definitions before the Court that are consistent with this fundamental principle of claim construction.

[10] Mylan twice sought leave to assert several indefiniteness defenses that Mylan had failed to disclose in its PICs. As noted above, Judge Goodman rejected Mylan's motions for leave to amend its PICs with respect to all but one of its proposed indefiniteness defenses against the Asserted Patents and ordered Mylan not to argue such defenses in its revised claim construction briefs.

[11] *See, e.g., Phillips v. AWH Corp.,* 415 F.3d 1303, 1312-13 (Fed Cir. 2005) (en banc).

II. Aptalis's Claimed Inventions Relate To Improved Formulations Of Mesalamine Rectal Suppositories For Treating Ulcerative Colitis.

A. Drug Products Containing Mesalamine Are Effective In Treating Ulcerative Colitis.

Aptalis's Asserted Patents concern improved formulations for treating ulcerative colitis ("UC"). UC is an extremely debilitating disease of the colon. According to the Crohn's & Colitis Foundation of America, UC "may affect as many as 700,000 Americans."[12] Those suffering from UC experience "diarrhea with discharge of mucus and blood, cramping abdominal pain, and inflammation and edema of the mucous membrane with patches of ulceration."[13] Patients suffering from "more extensive" versions of UC must "improve[] rapidly with medication," or undergo surgery "to prevent colon rupture and high risk of death."[14]

The pharmaceutical ingredient mesalamine—more formally known as 5-aminosalicylic acid (5-ASA)—has proven to be "effective in reducing disease symptoms and the incidence of relapse" in UC.[15] Physicians can administer mesalamine orally (*e.g.*, in the form of delayed- and extended-release tablets and capsules), or rectally (*e.g.*, by suppositories and enemas).[16] Rectal suppository administration offers numerous advantages over oral administration, such as lesser side effects, better therapeutic effect by placing the drug in the body closer to the site of the disease, and enabling physicians to

[12] Crohn's & Colitis Foundation of America: What is Ulcerative Colitis?, http://www.ccfa.org/what-are-crohns-and-colitis/what-is-ulcerative-colitis/ (last visited May 1, 2014).

[13] *E.g.*, '384 Patent at 1:34-42 & 5:10-14, Ex. 1 (ECF No. 64-5); '083 Patent at 1:37-45 & 5:26-30, Ex. 2 (ECF No. 64-6).

[14] '384 Patent at 1:43-52, Ex. 1 (ECF No. 64-5); '083 Patent at 1:46-55, Ex. 2 (ECF No. 64-6).

[15] '384 Patent at 1:53-55, Ex. 1 (ECF No. 64-5); '083 Patent at 1:56-58, Ex. 2 (ECF No. 64-6).

[16] '384 Patent at 1:55-57, Ex. 1 (ECF No. 64-5); '083 Patent at 1:58-60, Ex. 2 (ECF No. 64-6).

administer the drug at times when oral administration would be difficult.[17]

B. Before Aptalis's Inventions, Suppositories With High Mesalamine Content Were Desirable, But Unavailable Due To Manufacturing Difficulties.

Aptalis's Asserted Patents relate to mesalamine rectal suppository drug products characterized by a relatively high drug content—also called "drug load." Drug load is the weight percentage of the active ingredient relative to the suppository's total weight.[18] Generally, a higher drug load is desirable because it provides for flexibility in manufacturing and allows for the delivery of the same amount of active ingredient in a smaller, more comfortable suppository.[19] However, in practice, it is difficult to create high drug load suppositories with useful properties. As one attempts to incorporate more active ingredient (usually in particulate or powder form) when making suppositories, the mixture of active ingredients and the suppository base material becomes too viscous to form the suppository, it becomes more difficult to achieve a uniform mixing of the active ingredient and the suppository base material, and the resulting suppositories become brittle and non-uniform (*e.g.,* the amount of active ingredient varies among suppositories). Also, suppositories with higher drug loads often suffer from a slow drug release rates, which negatively affects their therapeutic efficacy.[20]

As of 2007, the problems typically associated with suppositories with high drug loads also specifically applied to the making of mesalamine suppositories. "Generally, when the drug load of a mesalamine suppository is increased, so too is its viscosity. If the viscosity of

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[17] '384 Patent at 1:55-2:7, Ex. 1 (ECF No. 64-5); '083 Patent at 1:58-2:4, Ex. 2 (ECF No. 64-6).

[18] *E.g.*, '384 Patent at 4:56-57, Ex. 1 (ECF No. 64-5); '083 Patent at 5:4-5, Ex. 2 (ECF No. 64-6).

[19] *E.g.,* '384 Patent at 2:8-32, Ex. 1 (ECF No. 64-5); '083 Patent at 2:5-31, Ex. 2 (ECF No. 64-6).

[20] *E.g.,* '384 Patent at 2:8-32, Ex. 1 (ECF No. 64-5); '083 Patent at 2:5-31, Ex. 2 (ECF No. 64-6).

the mesalamine suspension is too high, it cannot be cast into a suppository having acceptable content uniformity and good therapeutic properties."[21] Thus, POSAs striving to make mesalamine suppositories with a high drug load ultimately failed.

C. The Aptalis Inventors Solved Problems Associated With The Manufacturing Of Mesalamine Suppositories With High Drug Loads.

The Aptalis Inventors surprisingly found they could solve problems associated with the manufacturing of mesalamine rectal suppositories with a high drug load by controlling certain properties of the ingredients used to make the suppositories.[22]

One discovery made by the Aptalis Inventors related to the tap density of the mesalamine material.[23] (The "tap density" of a powder refers to the density measurement that results from tapping a container housing a powder sample.[24]) The Aptalis Inventors "surprisingly found that the viscosity of the mesalamine suspension can be decreased by increasing the tap density of the mesalamine."[25] Their research determined that the ideal tap density for a mesalamine suppository was in the range of about 600 grams per liter to about 800 grams per liter (as measured by USP <616>).[26] They found that by using mesalamine with a tap density in that range, drug makers could reliably manufacture a compact suppository with a drug load of 35% and above. Such suppositories would provide

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[21] '384 Patent at 2:26-29, Ex. 1 (ECF No. 64-5); '083 Patent at 2:24-29, Ex. 2 (ECF No. 64-6).

[22] *E.g.,* '384 Patent at 2:29-32, Ex. 1 (ECF No. 64-5); '083 Patent at 2:29-31, Ex. 2 (ECF No. 64-6).

[23] '384 Patent at 2:26-32, 2:54-56, 3:1-4 & 6:25-29, Ex. 1 (ECF No. 64-5); '083 Patent at 2:24-31, 3:1-3, 3:16-19 & 6:42-46, Ex. 2 (ECF No. 64-6).

[24] USP <616> (2007) at APT-1410-1413, Ex. 6 (ECF No. 64-10) ("After observing the initial [powder] volume, [a measuring] cylinder is mechanically tapped, and volume readings are taken until little further volume change is observed.").

[25] '384 Patent at 2:29-32, Ex. 1 (ECF No. 64-5); '083 Patent at 2:29-31, Ex. 2 (ECF No. 64-6).

[26] '384 Patent at 2:54-56, 3:1-4 & 6:25-29, Ex. 1 (ECF No. 64-5); '083 Patent at 3:1-3, 3:16-19 & 6:42-46, Ex. 2 (ECF No. 64-6).

patients "increased comfort of use" over mesalamine suppositories available at the time of the discovery.[27]

The Aptalis Inventors claimed their inventions in the '384 and '083 patents.[28] A POSA would understand the asserted claims of these patents to relate to improved mesalamine rectal suppositories with high drug loads and a desirable rate of mesalamine dissolution that one can reliably manufacture by controlling certain properties of the active and inactive ingredients that make up the suppository.[29]

III. The Intrinsic Record Is The Best Evidence Of The Plain And Ordinary Meaning Of Claim Terms.

The "claims of a patent define the invention to which the patentee is entitled the right to exclude."[30] The Court must determine the scope and meaning of patent claims as a matter of law.[31]

Claim terms "are generally given their ordinary and customary meaning."[32] As the Federal Circuit stated in its *en banc* decision in *Phillips v. AWH Corp.*, the "ordinary and customary meaning of a claim term is the meaning" a term would have to "a person of ordinary skill in the art in question at the time of the invention, *i.e.,* as of the effective filing date of the patent application."[33]

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[27] '384 Patent at 2:20-22, Ex. 1 (ECF No. 64-5); '083 Patent at 2:18-20, Ex. 2 (ECF No. 64-6).

[28] The Patent Office issued the '384 patent on June 2, 2009, and the '083 patent on July 10, 2012.

[29] Allen Decl. ¶ 27 (ECF No. 64-1).

[30] *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal quotation omitted).

[31] *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996).

[32] *Phillips*, 415 F.3d at 1312 (internal quotation omitted).

[33] *Phillips*, 415 F.3d at 1313.

In this case, a POSA would be someone working in the pharmaceutical fields with knowledge of pharmaceutical ingredient characterization (*i.e.*, testing the physical and chemical properties of pharmaceutical ingredients), formulation design (*i.e.*, the science of combining and mixing pharmaceutical ingredients to form finished products, and the testing of those products), and/or manufacturing and process development (*i.e.*, designing ways to make finished pharmaceutical products) for solid dosage forms such as suppositories.[34]

POSAs are deemed to interpret claim terms in the context of the entire patent, including the specification.[35] The Federal Circuit explained this concept in *Phillips* (borrowing from its earlier decision in *Multiform Desiccants, Inc. v. Medzam, Ltd.*):

> "It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed. Such person is deemed to read the words used in the patent documents with an understanding of their meaning in the field, and to have knowledge of any special meaning and usage in the field. The inventor's words that are used to describe the invention—the inventor's lexicography—must be understood and interpreted by the court as they would be understood and interpreted by a person in that field of technology. Thus the court starts the decisionmaking process by reviewing the same resources as would that person, *viz.*, the patent specification and the prosecution history."[36]

The Federal Circuit further highlighted this point in *Phillips* by discussing several other decisions:

- The court noted its statement in *Medrad, Inc. v. MRI Devices Corp.*: "We cannot look at the ordinary meaning of the term ... in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history."[37]

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[34] Allen Decl. ¶¶ 19-22 (ECF No. 64-1).

[35] *Phillips*, 415 F.3d at 1313.

[36] *Phillips*, 415 F.3d at 1313 (quoting *Multiform Desiccants, Inc. v. Medzam*, *Ltd*., 133 F.3d 1473, 1477 (Fed. Cir. 1998)).

[37] *Phillips*, 415 F.3d at 1313, discussing *Medrad, Inc. v. MRI Devices Corp*., 401 F.3d 1313, 1319 (Fed. Cir. 2005).

- The court noted its holding in *V–Formation, Inc. v. Benetton Group SpA* that the intrinsic record "usually provides the technological and temporal context to enable the court to ascertain the meaning of the claim to one of ordinary skill in the art at the time of the invention"[38]

- The court noted its holding in *Unitherm Food Sys., Inc. v. Swift–Eckrich, Inc*. that the proper definition of a claim term is the "definition that one of ordinary skill in the art could ascertain from the intrinsic evidence in the record."[39]

The Federal Circuit has "emphasized the importance of intrinsic evidence in claim construction."[40]

IV. The United States Pharmacopeia Provides Intrinsic Evidence Of The Meaning Of Aptalis's Claim Terms.

A. The United States Pharmacopeia Is The Official Compendium Of Industry Standards For Drugs Marketed In The United States.

The United States Pharmacopeial Convention, established in 1820, is a nonprofit organization that sets standards for the identity, strength, quality, and purity of medicines manufactured, distributed and consumed worldwide. The United States Pharmacopeial Convention publishes the standards it develops in The United States Pharmacopeia and The National Formulary (USP–NF).[41] The U.S. Federal Food, Drug, and Cosmetics Act designates the USP–NF as the official compendium for drugs marketed in the United States. A drug product distributed in the U.S. market must conform to the USP–NF industry standards to avoid possible charges of adulteration and misbranding.[42]

Courts repeatedly have recognized the USP-NF as the "official compendium of

[38] *Phillips*, 415 F.3d at 1313, discussing *V–Formation, Inc. v. Benetton Group SpA*, 401 F.3d 1307, 1310 (Fed. Cir. 2005).

[39] *Phillips*, 415 F.3d at 1314, discussing *Unitherm Food Sys., Inc. v. Swift–Eckrich, Inc.*, 375 F.3d 1341, 1351 (Fed. Cir. 2004).

[40] *Phillips*, 415 F.3d at 1317.

[41] Allen Decl. ¶¶ 42-43 (ECF No. 64-1).

[42] Allen Decl. ¶ 44 (ECF No. 64-1).

standards for drugs marketed in the United States,"[43] and that all "[p]rescription and over-the-counter medicines available in the United States must, by federal law, meet USP's public standards."[44]

B. A POSA Would Be Intimately Familiar With Relevant USP Standards And Tests.

To ensure that adopted USP standards are unambiguous, comprehensive, and reliable and repeatable, any proposed standards and tests go through a rigorous evaluation process.[45] A standard is usually originally conceived by interested parties in the pharmaceutical industry (*e.g.,* pharmaceutical manufacturers, pharmaceutical testing laboratories, and pharmaceutical professionals), by a USP expert committee assigned to cover a particular subject, or by USP staff. Once the USP develops a proposed new monograph or chapter, the USP publishes it for a 90-day public comment period. An expert committee then reviews the proposed addition along with any comments received from the pharmaceutical industry, the FDA, testing laboratories, and other interested parties. If the expert committee approves the proposed standard, it is then published in the USP as an official pharmaceutical industry standard.[46]

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[43] *Alza Corp. v. Andrx Pharms., LLC*, 607 F. Supp. 2d 614, 627 (D. Del. 2009). *See also UCB, Inc. v. KV Pharma. Co.*, No. 08-cv-0223, 2009 WL 2524519 at *8 n.3 (D. Del. Aug. 18, 2009) ("The U.S. Pharmacopoeia-National Formulary ("USP") is the official compendium of standards for drugs marketed in the United States").

[44] *Abraxis Bioscience, Inc. v. Navinta, LLC*, 640 F. Supp. 2d 553, 576 (D.N.J. 2009) ("The United States Pharmacopeia (USP) is an official public standards-setting authority for all prescription and over-the-counter medicines manufactured or sold in the Unites States. … Prescription and over-the-counter medicines available in the United States must, by federal law, meet USP's public standards."), *rev'd and vacated on other grounds*, 625 F.3d 1359 (Fed. Cir. 2010).

[45] Responsive Allen Decl. ¶¶ 12-15 (ECF No. 90-1).

[46] Responsive Allen Decl. ¶¶ 12-13 (ECF No. 90-1). *See also* Block Depo. at 15:22-16-12, Ex. 20 (ECF No. 90-5) (USP staff, manufacturers, other parties and the public submit proposals to committees, and committees review the proposals and discuss them at length); *id.* at 16:19-17:21 & 18:5-11 (people who serve on USP committees are "experts in their areas" that go through a "vetting process"); *id.* at 18:12-19:8 (stating that proposed USP standards are reviewed by a committee, then staff, then again by the committee, then

"The process of vetting" or "validating" USP testing standards "is ***complex***," said Mylan's expert, Dr. Block.

> "It may involve the USP's own laboratory staff performing the test. It may involve the test being done by outside laboratories. It varies. It may be a combination of those. And test results are then communicated to the committee that reviews it, critiques it, perhaps asks for additional information. And that's certainly prior to any approval of a new method or modification of an existing method."[47]

USP standards and test procedures can change to accommodate new developments in the field and to correct or clarify standards. Revisions can be proposed at any time:

> "The initiation of a change in a monograph, in a test procedure, often comes from comments submitted by the public. That public could include manufacturers, pharmaceutical manufacturers, excipient manufacturers. It could include laboratories that are involved in carrying out test procedures as consultants. So comments come in from many different areas. It could even come from comments made by members of the Food & Drug Administration. The FDA may submit comments that initiate a discussion or a dialogue. In any event, those comments or questions may initiate a review of a particular method or procedure."[48]

Revisions go through the same review process as an original standard. Once the USP decides to consider a proposed revision, the expert committee covering the subject area reviews the relevant literature, considers any information or suggestions received from the public comment period, and determines whether to revise the provision in question.[49] As Mylan's Dr. Block stated: "And the committee will work with USP staff and laboratory staff, outside individuals who are sought out as consultants or collaborators in a particular case; and there will be an effort to resolve the issue at hand."[50]

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published in the Pharmacopeial forum for public comment, then reviewed for a final time by the expert committee before eventually being incorporated into the USP).

[47] Block Depo. at 21:11-22:5, Ex. 20 (ECF No. 90-5) (emphasis added).

[48] Block Depo. at 22:16-23:13, Ex. 20 (ECF No. 90-5).

[49] Responsive Allen Decl. ¶ 14 (ECF No. 90-1).

[50] Block Depo. at 23:13-18, Ex. 20 (ECF No. 90-5).

The USP test provisions relevant to Aptalis's patents (*e.g.*, USP <616>, USP <711>, and USP <741>) appeared in the USP long before the Aptalis Inventors conceived of the mesalamine rectal suppositories and the methods of treatment claimed in the Asserted Patents. The USP has not revised or changed these standards for ***many*** years (even decades for some chapters). This is compelling evidence that the USP (including the expert committees responsible for the relevant chapters) and the pharmaceutical industry as a whole accept those provisions as clear and unambiguous industry standards.[51]

A POSA with respect to Aptalis's Asserted Patents would, by definition, be very familiar with the USP in general and the provisions particularly relevant to the Asserted Patents. That person would have worked in the pharmaceutical arts armed with knowledge of active pharmaceutical ingredient characterization, formulation design, and process development for solid dosage forms such as suppositories. This person would have gained this knowledge either through experience working in drug development, formulation and/or manufacturing, or through training (such as by earning a degree in a pharmaceutical science).[52] Because the formulation of the suppository dosage form presents unique challenges, the pharmaceutical arts specifically dealing with suppositories would have particular relevance to the Asserted Patents.[53]

Such persons would know, both from their own experience and from the guidance provided in the specifications (which expressly incorporate the entire USP) and the Asserted Patents' claim language, that they should measure the claimed properties of the suppositories and of the suppository ingredients according to the procedures described in

[51] Responsive Allen Decl. ¶ 15 (ECF No. 90-1).

[52] *See, supra*, Section III 10-11; Allen Decl. ¶¶ 21-22 (ECF No. 64-1); Responsive Allen Decl. ¶¶ 4, 6 (ECF No. 90-1).

[53] Mylan's Dr. Block essentially agrees with Aptalis's definition of a POSA. Dr. Block declared that the "relevant field" is "the field of pharmaceutical formulation." (Block Decl. ¶ 39, ECF No. 63-11 in Case 13-4158.) He also emphasized his "extensive knowledge and experience in the area of suppositories." (*E.g.*, Block Decl. ¶ 3, ECF No. 63-11 in Case 13-4158.)

the USP chapters concerning tap density, dissolution testing, and melting points unless expressly modified by the Asserted Patents.[54] They also would know to make the claimed suppositories by using mesalamine that satisfies USP purity standards—*i.e.,* mesalamine, USP.

C. The USP Is Incorporated Into The Specifications Of The Asserted Patents And Is Part Of The Intrinsic Record.

The specifications for Aptalis's Asserted Patents state: "All non-patent references, patents and patent applications cited and discussed in this specification are incorporated herein by reference ***in their entirety and to the same extent as if each was individually incorporated by reference***."[55] The USP is one of the "non-patent references" that is "cited and discussed" in the specifications. The patents mention the USP more than 50 times.[56]

The specifications' incorporation by reference of the USP makes the USP intrinsic evidence of the meaning of the claim terms at issue. The Federal Circuit's ruling in *LG Elec., Inc. v. Bizcom Elec., Inc.*,[57] confirms this. In that case, the specification of the patent at issue incorporated by reference a document produced by the IEEE microprocessor standards committee that disclosed and described industry standards. Although the specification did not apply the disclosed standards to any particular claim term, the Federal Circuit nonetheless found the standards to be intrinsic evidence of the meaning of the claim term "requesting agent." The court explained:

> "Although we have concluded that the patentee did not expressly adopt the definition of 'requesting agent' in the incorporated industry standard, that

[54] Allen Decl. ¶ 91 (ECF No. 64-1); Responsive Allen Decl. ¶ 8 (ECF No. 90-1).

[55] '384 Patent at 14:6-9, Ex. 1 (ECF No. 64-5); '083 Patent at 14:5-8, Ex. 2 (ECF No. 64-6).

[56] *See, e.g.,* '384 Patent at 5:31-32, Ex. 1 (ECF No. 64-5); '083 Patent at 5:46-47, Ex. 2 (ECF No. 64-6) (citing "United States Pharmacopoeia"). *See also* Allen Decl. ¶ 47 (ECF No. 64-1).

[57] *LG Elec., Inc. v. Bizcom Elec., Inc.*, 453 F.3d 1364 (Fed. Cir. 2006), *rev'd on other grounds*, 555 U.S. 617 (2008).

> standard remains relevant in determining the meaning of the claim term to one of ordinary skill in the art at the time the patent application was filed, and ***it is treated as intrinsic evidence for claim construction purposes*** … The trial court erred by failing to give proper weight to the incorporated industry standard; ***it failed to consider the standard as intrinsic evidence of the meaning to one of ordinary skill in the art*** as of the filing date. After considering the standard, in addition to the patent claims and specification, we conclude that [plaintiff's] proffered definition based on the standard is correct."[58]

Thus, consistent with the Federal Circuit's holding in *LG Elec.*, this Court should view the USP—the incorporated pharmaceutical industry standard—as intrinsic evidence of the meaning of the disputed claims terms to a POSA.

D. Even Without Express Incorporation, Courts Rely On Industry Standards Like The USP In Determining What Persons Of Ordinary Skill In The Art Would Consider The Plain And Ordinary Meaning Of Claim Terms To Be.

Even when an industry standard is not expressly incorporated by reference (which is ***not*** the case here, because the patents expressly incorporate the USP by reference), relevant provisions of such an industry standard still would be highly relevant to claim construction because they would indicate how POSAs would understand and interpret claim terms. Thus, the USP's status as a compendium of enforceable pharmaceutical industry standards provides a separate and independent reason for the Court to rely on the USP in determining the meaning of the disputed claim terms.

The Federal Circuit repeatedly has held that courts can use publications from standards-setting organizations "to aid in determining the ordinary and customary meaning of technical terms."[59] Thus, in *Serconet Ltd. v. Netgear, Inc.*, the court adopted the patentee's construction of a disputed claim term because the patentee's definition "comes from an engineering standards setting organization, ***and therefore constitutes a plain***

[58] *LG Elec.*, 453 F.3d at 1375 (emphasis added).

[59] *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1090 (Fed. Cir. 2003).

meaning to one skilled in the art."[60]

Examples abound of courts applying industry standards to determine the plain and ordinary meaning of claims terms. The Federal Circuit's decision in *Wellman, Inc. v. Eastman Chem. Co.*[61] is especially instructive.

The patents at issue in *Wellman* claimed "slow-crystallizing" polyethylene terephthalate ("PET") resins for use in plastic beverage containers.[62] The patents defined "slow-crystallizing" PET resins as those possessing a "significantly higher heating crystallization exotherm peak temperature (T_{CH}) compared with conventional PET resins …"[63] The court explained that T_{CH} is the "temperature at which the sample crystallizes the fastest during heating in a differential scanning calorimetry ('DSC') machine."[64]

All of Wellman's asserted claims included a T_{CH} limitation. This limitation from claim 1 of the asserted '317 patent was typical: "wherein the polyethylene terephthalate resin has a heating crystallization exotherm peak temperature (T_{CH}) of more than about 140° C. per minute ***as measured by differential scanning calorimetry***."[65]

The defendant moved for summary judgment, contending the patents failed to disclose "sample conditions and testing parameters essential for obtaining consistent DSC measurements."[66] The district court found the defendant's motion persuasive. It ruled that the Wellman patents "do not disclose or suggest the desired moisture content for the claimed PET resins, even though variations in moisture content can affect T_{CH}

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[60] *Serconet Ltd. v. Netgear, Inc.*, No. 06-4646, 2007 WL 2209270, at *12 (N.D. Cal. Jul. 30, 2007) (emphasis added).

[61] *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355 (Fed. Cir. 2011).

[62] *Wellman,* 642 F.3d at 1357.

[63] *Id.* at 1357.

[64] *Id.* at 1357.

[65] *Id.* at 1358 (emphasis added).

[66] *Id.* at 1359.

measurements."[67]

The Federal Circuit reversed the district court's grant of summary judgment after concluding a POSA would refer to established industry standards to determine the "specific moisture conditions for DSC testing."[68] In laying the groundwork for its decision, the court noted that claims "need not be plain on their face in order to avoid condemnation for indefiniteness," and stated that "'proof of indefiniteness must meet an "exacting standard."'"[69]

The court then addressed the merits. Noting that "***an inventor need not explain every detail because a patent is read by those of skill in the art***," the court declared:

> "***Well known industry standards need not be repeated in a patent***. … In this case, the record shows that ***a person of ordinary skill in the art in this field would follow standard industry guidance*** for conditioning plastics for DSC. Specifically, the record shows that (1) the 1997 International Standard for Differential Scanning Calorimetry of Plastics ('ISO 11357–1') (the '1997 ISO') provides a person of skill in the art with an objective standard for moisture conditioning; (2) a person of skill in the art would have been aware of the 1997 ISO prior to the filing of its patent applications; and (3) a person of skill in the art would have interpreted the Wellman patents in view of the 1997 ISO."[70]

The court added that Wellman's expert had testified in a declaration that "a person of skill in the art would have interpreted the Wellman patents in view of the internationally recognized 1997 ISO."[71] The court also noted that the record did not suggest any reason why a "person of skill in the art would have been incapable of applying those moisture conditioning standards to the claimed invention to achieve consistent, repeatable T_{CH} measurements."[72]

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[67] *Id*. at 1359.

[68] *Id.* at 1367.

[69] *Id.* at 1366.

[70] *Id.* at 1367 (emphasis added).

[71] *Id*.

[72] *Id.* at 1368.

Wellman has great application to this case. In this case, as in *Wellman*, established industry standards provide a POSA with standards for measuring the claimed properties. In this case, as in *Wellman*, a POSA would have been aware of the relevant industry standards contained in the USP. In view of these USP standards, the Aptalis Inventors knew they did not need to include in their patent claims, or in the patent specifications, precise details regarding how a POSA should measure tap density, ascending melting point, or dissolution/release rates. The Inventors also knew a POSA would know how to do these measurements from his or her familiarity with the USP. And to make things doubly clear, the Aptalis Inventors incorporated the entire USP into the patent specifications. Also, Dr. Allen has provided expert testimony that a POSA would have interpreted the Asserted Patents in view of the USP industry standards. Thus, just as the court in *Wellman* referred to the ISO standards to construe the patent claims at issue, this Court should refer to the USP to construe Aptalis's patent claims (even if it does not find—as it should—that the USP is expressly incorporated into the specifications).

Other examples of Federal Circuit decisions endorsing reliance on industry standards to construe claim terms include:

- In *Janssen Pharm., N.V. v. Eon Labs Mfg., Inc.*, the court construed the claim term "a diameter of from about 600 to 700 um (25-30 mesh)" to include the parenthetical language recited in the claim partly because "a person of ordinary skill in the art reading the claims in conjunction with the written description would understand [the claim term] to require cores selected according to the [pharmaceutical] industry standard sieving process and not simply particles having a certain micron diameter."[73]

- In *Vizio, Inc. v. Int'l Trade Comm'n*, the court ruled that "MPEG compatible program map information" must refer to the MPEG-2 standard because one skilled in the art would understand the claims to refer to the MPEG-2 standard.[74]

- In *Chimie v. PPG Indus., Inc.*, the Court affirmed the district court's construction

[73] *Janssen Pharm., N.V. v. Eon Labs Mfg., Inc.*, 134 Fed. Appx. 425, 428-29 (Fed. Cir. 2005).

[74] *Vizio, Inc. v. Int'l Trade Comm'n*, 605 F.3d 1330, 1337 (Fed. Cir. 2010).

> of "dust-free and non-dusting" to mean "a level of dust formation … as measured in percentage weight according to [industrial standard] DIN 53 583, that has a fines content value less than or equal to…." The court rejected the defendant's proposed construction of "no dust cloud whatsoever," because "a person of ordinary skill in the art would not interpret this term in that manner."[75]

Of particular relevance to this case, courts have relied (and should rely) on the USP in considering what would be understood by a POSA reading Aptalis's Asserted Patents. For example, in *In re Wellbutrin XL Antitrust Litigation*, the court, "based on the undisputed expert testimony about the testing protocol typically employed to test enteric-coated products, and the stature of the USP in the scientific community," found it was "not persuaded" that "it was unreasonable to argue that those skilled in the art would interpret 'dissolution profile' to incorporate the USP-based pH switch test as a matter of plain meaning."[76]

E. Through The USP, The Intrinsic Record Includes Teachings That Inform The Meaning Of Numerous Claim Limitations.

The USP-NF (which Aptalis also refers to in this brief as the "USP") contains several sections directly relevant to the mesalamine rectal suppositories claimed in Aptalis's Asserted Patents. These sections provide important and reliable evidence of what a POSA would consider to be the plain and ordinary meaning of Aptalis's patent claims.

One highly relevant provision in the USP-NF is the monograph for mesalamine.[77] The USP-NF contains "monographs" for ingredients—both active pharmaceutical ingredients (in the USP) and pharmaceutical excipients (in the NF)—used in pharmaceutical products. The monographs set forth quality and purity standards for pharmaceutical ingredients.

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[75] *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1375, 1377 (Fed. Cir. 2005).

[76] *In re Wellbutrin XL Antitrust Litigation*, Nos. 08-2431, 08-2433, 2012 WL 1657734, at *16 (E.D.Pa. May 11, 2012).

[77] A USP monograph is an article that describes the required purity and other characteristics that a sample of the subject chemical substance must meet before one can use it to treat humans.

Pharmaceutical products that are intended for use in humans ***must*** contain ingredients that meet the quality standards set forth in the USP monographs.[78] The *General Notices* section of the USP states, "Official drug products and finished devices are prepared from ingredients that meet the requirements of the compendial monographs for those individual ingredients for which monographs are provided."[79] The USP monograph for mesalamine establishes purity requirements for any mesalamine incorporated into pharmaceuticals that may be used in humans.[80] Mesalamine that meets USP standards is often referred to as "mesalamine, USP" or "mesalamine (USP)."[81]

The USP also contains industry-standard tests for POSAs to use to properly measure properties recited in the Asserted Patent claims.[82] The USP expressly states that the tests set forth in various chapters "are intended to serve as the ***official test methods*** in the event of a question or dispute as to whether the compounded preparation complies with official standards."[83] The chapters with particular relevance to Aptalis's Asserted Patents include:

- **USP <616>**, titled "Bulk Density And Tapped Density Of Powders," which details a method for measuring tap density of powders such as mesalamine. Chapter 616 is the only USP chapter that discusses how to measure tap density.[84]
- **USP <711>**, titled "Dissolution," which provides information as to how one should measure the dissolution rates of pharmaceutical products. Chapter 711 is the only USP chapter that discusses how to measure dissolution.[85]

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[78] Allen Decl. ¶ 43 (ECF No. 64-1).

[79] USP General Notices (2007), Ex. 11 (ECF No. 64-15) at 5-6.

[80] Mesalamine, USP (monograph) (2006), Ex. 4 (ECF No. 64-8) at APT 1653-1660.

[81] Allen Decl. ¶ 52 (ECF No. 64-1).

[82] USP 30-NF 25, "Mission and Preface" (2007) at p. v; Allen Decl. ¶¶ 45-46 (ECF No. 64-1) (attached as Ex. B to the Allen Decl.).

[83] USP General Notices (2007), Ex. 11 (ECF No. 64-15) at 6 (emphasis added); Allen Decl. ¶ 45 (ECF No. 64-1).

[84] *See* USP <611> (2007), Ex. 6 (ECF No. 64-10); Allen Decl. ¶ 51 (ECF No. 64-1).

[85] *See* USP <711> (2007), Ex. 7 (ECF No. 64-11); Allen Decl. ¶ 52 (ECF No. 64-1).

- **USP <741>**, titled "Melting Range or Temperature," which provides instruction for measuring the ascending melting point of ingredients such as hard fat. Chapter 741 is the only USP chapter that discusses how to measure ascending melting points.[86]

Because the USP includes these chapters describing the industry-standard procedures for measuring the claimed properties, POSAs would have known the recited properties are as measured according to these standards (unless expressly modified by the Asserted Patents). Later in this brief we will discuss in greater detail the USP monograph on mesalamine and Chapters 616, 711, and 741, and explain how they support Aptalis's proposed constructions.

V. Aptalis's Constructions Are Consistent With The Plain And Ordinary Meaning Of Claim Terms And Are Supported By The Intrinsic Record.

The parties are presenting many claim terms for the Court to construe. Aptalis's proposed constructions fully reflect the intrinsic record and the understandings of a POSA in view of the intrinsic record.

A. Mylan Cannot Use Purported Indefiniteness Defenses As An Excuse For Not Proposing Claim Constructions.

For numerous disputed claim terms, Mylan has offered no construction for the Court to consider (thereby leaving Aptalis's construction uncontested). Instead, Mylan contends the terms are indefinite. Mylan's indefiniteness arguments are premature. As the court stated in *Shire LLC v. Amneal Pharm., LLC*: "the Court notes that it is not presently entertaining an invalidity challenge, but doing claim construction. The issue of whether certain claims are invalid for indefiniteness … ***is a matter for another day***."[87]

Numerous New Jersey courts have rejected attempts like Mylan's to inject the

[86] *See* USP <741> (2007), Ex. 8 (ECF No. 64-12); Allen Decl. ¶ 53 (ECF No. 64-1).

[87] *Shire LLC v. Amneal Pharm., LLC*, Nos. 11-3781 & 12-83, 2013 WL 4045622, at *13 (D.N.J. Aug. 8, 2013) (emphasis added).

invalidity defense of indefiniteness into claim construction. For example, in *JVI, Inc. v. Truckform Inc.*, the defendant (like Mylan in this case) tried to litigate its indefiniteness defenses during claim construction. The court refused to allow it, stating "many courts consider questions of indefiniteness on summary judgment following a *Markman* hearing and with the benefit of extrinsic evidence directed to that inquiry."[88] Similarly, in *Peavey Elec. Corp. v. Behringer Int'l GmbH*, the court declined to address indefiniteness arguments during claim construction, stating it would "instead hear such arguments … in the context of a dispositive motion on the issue of invalidity."[89]

One reason courts have refused to entertain indefiniteness arguments during claim construction is the high burden of proof that proponents of the defense must overcome. Courts have noted it "would be difficult" "at this early stage" of claim construction to prove purported indefiniteness "by *clear and convincing* evidence."[90]

B. Aptalis's Construction Of "About" As "Approximately."

All of Aptalis's asserted claims use "about"—either expressly or through dependency. The Asserted Patents employ the term in five limitations. As Judge Goodman wrote, "Aptalis's construction of 'about'" as "approximately" is its "plain and ordinary meaning"

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[88] *JVI, Inc. v. Truckform Inc.*, No. 11-6218, 2012 WL 6708169, at *27-28 (D.N.J. Dec. 26, 2012).

[89] *Peavey Elec. Corp. v. Behringer Int'l GmbH*, No. 09-918, 2010 WL 4669907, at *13 (D.N.J. Nov. 9, 2010).

[90] *LG Elecs. U.S.A., Inc. v. Whirlpool Corp.*, No. 09-5142, 2011 WL 1560592, at *6 n. 3 (D.N.J. Apr. 25, 2011) (indefiniteness determination is more appropriate for summary judgment because it is dispositive) (citing *Halliburton Energy Servs., Inc. v. M-ILLC*, 514 F.3d 1244, 1249-50 (Fed. Cir. 2008)) (italics in original).

See also TransWeb, LLC v. 3M Innovative Props. Co., No. 10-4413, 2011 WL 5825782, at *4 (D.N.J. Nov. 16, 2011) (although "determining the indefiniteness of claim language is a question of law 'that is drawn from the court's performance of its duty as the construer of patent claims… this does not outweigh the previous practical considerations that militate against determining indefiniteness prior to the end of fact or expert discovery"); *Int'l Dev. LLC v. Richmond*, No. 09-2495, 2010 WL 4703779, at *7 (D.N.J. Nov. 12, 2010) (same); *Waddington N. Am., Inc. v. Sabert Corp.*, No. 09-4883, 2010 WL 4363137, at *3 (D.N.J. Oct. 27, 2010) (same).

and "is consistent with established case law from both the Court of Appeals for the Federal Circuit and this District."[91]

Construing "about" as "approximately" without any express numerical parameters will not adversely affect infringement analysis later in the litigation. At that time, the Court can determine as the fact finder whether particular numeric values fall within the meaning of a value or range modified by "about."[92]

Limitation	Term	Aptalis's Construction
Tap density	▪ "about 600 to about 800 g/L"	⇒ "approximately 600 to approximately 800 g/L"
Drug Load	▪ "from about 39 to about 45%"	⇒ "from approximately 39 to approximately 45%"
	▪ "from about 41 to about 43%"	⇒ "from approximately 41 to approximately 43%"
Release Rate	▪ "about [*x*]% by weight"	⇒ "approximately [*x*]% by weight"
Amount of Mesalamine	▪ "about 850 to about 1150 mg"	⇒ "approximately 850 to approximately 1150 mg"
	▪ "about 950 to about 1050 mg"	⇒ "approximately 950 to approximately 1050 mg"

Mylan has not offered any construction of "about," Mylan previously argued that any claim term containing "about" was indefinite. However, Mylan failed to assert an "about"

[91] 6/20/14 Order at 7, ECF No. 75. *See, e.g., Merck & Co. v. Teva Pharm., USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("the term 'about' should be given its ordinary and accepted meaning of 'approximately'"); *Pfizer Inc. v. Teva Pharms. USA, Inc.*, 855 F. Supp. 2d 286, 299 (D.N.J. 2012) ("the Court concludes that 'about' should be given its plain and ordinary meaning of 'approximately' or 'close to.'").

[92] *See, e.g., JVI,* 2012 WL 6708169 at *19 (declining to construe "approximately" further "because the common definition of the term is accessible to the jury without need for further elucidation"); *Ferring B.V. v. Watson Labs, Inc.*, Nos. 11–0481, 11–0485, 11–0853, 11–0854, 2013 WL 499158, *8-9 (D. Nev. Feb. 6, 2013) ("The Court rules that 'about' means 'approximately' and will instruct the jury no more specifically.").

indefiniteness defense in its Preliminary Invalidity Contentions and, as discussed above, Judge Goodman denied Mylan's request for leave to amend its contentions to include the argument and ordered Mylan "to refrain from including in its new briefing any indefiniteness arguments related to 'about' or [its interpretation as] 'approximately'."[93] Thus, Mylan is precluded from arguing that any claim terms are indefinite because of the presence of "about," or proposing any construction of "about."

C. Aptalis's Construction For "Mesalamine Rectal Suppository," "The Mesalamine Suppository," And "The Suppository."

The terms "mesalamine rectal suppository," "mesalamine suppository," and "the suppository," appear throughout the asserted claims. The parties agree that these terms all refer to the same thing, but have proposed different definitions. Aptalis's construction of "a suppository comprising mesalamine, USP, for rectal administration to a patient" is the one that aligns with the intrinsic record.

Disputed Claim Terms:	
❶ "mesalamine rectal suppository" ❷ "the mesalamine suppository" ❸ "the suppository"	
Aptalis proposes: a suppository comprising mesalamine, USP, for rectal administration to a patient	**Mylan proposes:** a medicated solid dosage form of various weights and shapes, for insertion into the rectum, which after insertion softens, melts, disperses, or dissolves, and in which the active pharmaceutical ingredient is mesalamine

The principal difference between the proposed constructions is that Aptalis's

[93] 4/20/15 Order at 21, ECF No. 131.

construction specifies "mesalamine, USP" rather than just "mesalamine." The intrinsic record supports Aptalis's view that the mesalamine rectal suppositories claimed in the Asserted Patents are comprised of mesalamine that satisfies USP purity standards. This mesalamine is commonly known as "mesalamine, USP."

The specifications make it clear that the recited mesalamine rectal suppositories are intended for use in humans.[94] Because ingredients for pharmaceutical products intended for use in humans and made or sold in the United States must meet USP quality and purity standards, a POSA would understand that a "mesalamine rectal suppository" suitable for administration to a human patient ***must*** use mesalamine that complies with USP standards—*i.e.,* mesalamine, USP.[95]

The specifications confirm that the claims require the use of "mesalamine, USP." Indeed, all the examples in the specification discussing the formulation of suppositories refer to mesalamine, USP. For example, "Example 1" discusses slowly adding "100.0 kg of ***mesalamine power [sic] USP*** to the mix tank" containing a hard fat mixture.[96] And "Example 6" discusses a procedure for preparing "1 g mesalamine suppositories, each containing 1000 mg ***mesalamine (USP)*** and 1381 mg Witepsol® H-12 (hard fat NF)."[97]

Furthermore, a POSA would understand from the reference to CANASA® in the patent specifications that the claimed inventions are comprised of mesalamine, USP. The specifications indicate the claimed inventions constitute improvements over CANASA®. Because CANASA® is an FDA-approved suppository product, it must use mesalamine that meets USP standards. Indeed, the CANASA® package insert indicates the product includes

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[94] Allen Decl. ¶ 62 (ECF No. 64-1).

[95] Allen Decl. ¶¶ 61-66 (ECF No. 64-1).

[96] '384 Patent at 7:44-55, Ex. 1 (ECF No. 64-5); '083 Patent at 7:40-62, Ex. 2 (ECF No. 64-6) (emphasis added).

[97] '384 Patent at 13:40-45, Ex. 1 (ECF No. 64-5); '083 Patent at 13:40-45, Ex. 2 (ECF No. 64-6) (emphasis added).

"Mesalamine, USP."[98] A POSA would know that a claimed improvement of CANASA® would similarly have to use mesalamine, USP.[99]

D. Aptalis's Construction For "Oily Or Fatty Base."

A POSA would understand that the term "an oily or fatty base" allows for suppository bases that one could describe as oily, fatty, or oily and fatty (depending on the temperature). Aptalis has construed the term consistent with that understanding.

Disputed Claim Term:	
"an oily or fatty base"	
Aptalis proposes: base that can be oily, fatty or both	**Mylan proposes:** "plain and ordinary meaning," without adding any further definition

Within the context of Aptalis's claimed inventions, a limitation reciting the use of "an oily or fatty base" indicates that one may use a single class of base material that can exist in both a "fatty" (*i.e.,* as a solid) and "oily" (*i.e.*, as a liquid) state, depending on the temperature. A POSA would understand this single class of base material to be the hydrophobic (*i.e.*, water repelling) class. Hydrophobic suppository bases are solid (*i.e.*, fatty) at room temperature, but change to an oily state when exposed to the higher temperature of the human body. This dual-state property is required for a suppository. It makes it possible to pack, ship, store, and administer the drug product at room temperature (when it is in solid form), and allows for the release of the active drug ingredient (as it melts and becomes oily) when the suppository is inserted into the body.[100]

[98] CANASA® Package Insert, Ex. 12 (ECF No. 64-16) at APT 1206.

[99] Allen Decl. ¶ 66 (ECF No. 64-1).

[100] Allen Decl. ¶¶ 68-73. As *Remington: The Science and Practice of Pharmacy* (a well-accepted handbook for people working the field of pharmaceutical formulation) states: "Suppositories are ***solid*** dosage forms of various weights and shapes, usually medicated,

Aptalis's construction aligns with the intrinsic record. The patent specifications confirm that the claims contemplate the use of one class of material that can exist in different physical states according to temperature. For example, the specifications refer to the melting of the suppository. Of course, for the suppository to melt, it must begin as a solid state and change to a liquid as temperature increases.[101]

The specifications discuss only a single class of hydrophobic bases, including both hard ***fat*** and theobroma ***oil*** (*i.e.*, cocoa butter[102]). Passages in the specifications refer to these different substances interchangeably and synonymously when speaking of the "oily or fatty base" limitation. For example, the specifications state:

> "The mesalamine (*e.g.,* in powder form) is typically dispersed in a suppository base, such as ***hard fat***. The suppository base can be an oily or fatty base. Conventional suppository bases which may be employed include ***theobroma oil***, ***hard fats***, glycerides of fatty acids, glycerol-gelatin bases, and mixtures thereof. Suitable hard fat bases include, but are no [sic] limited to, esterified mixtures of mon-, di- and triglycerides which are obtained by esterification of fatty acids … Such hard fats are commercially available, for example, under the name Witepsol® (*e.g.*, Witepsol® H12 and H15). A preferred suppository base is hard fat (*e.g.,* hard fat NF). …
>
> "Other suitable suppository bases include, but are not limited to, ***cocoa butter***, ***lauric oil***, beef tallow, ***hard fat***, and any combination of any of the foregoing."[103]

This clearly indicates, as Aptalis's proposed construction provides, that the suppository base can be made from an oil, a hard fat, or any materials that could be characterized as both fatty or oily depending on temperature.[104]

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for insertion into the rectum … After insertion, suppositories ***soften, melt***, disperse or dissolve in the cavity fluids." (Ex. 15 at APT 1190; emphasis added.)

[101] *E.g.*, '384 Patent at 5:60-63, Ex. 1 ("The ***melting*** point of the suppository is generally sufficient to ***melt*** in the patient's body, and is typically no more than about 37° C.") (emphasis added).

[102] Confectioners use cocoa butter to make chocolate because it is hard at room temperature, but melts when exposed to the higher temperature of the mouth.

[103] '384 Patent at 5:20-45, Ex. 1; '083 Patent at 5:37-61, Ex. 2 (emphasis added).

[104] Allen Decl. ¶¶ 68-73.

The Dosage Forms section of the USP, which is fully incorporated into the specifications, also establishes that POSAs use "fatty" and "oily" to refer to the same class of bases. It describes "Cocoa Butter Substitutes" for suppository bases as "produced from a variety of vegetable ***oils*** … (*e.g.*, ***Hydrogenated Vegetable Oil and Hard Fat***)."[105]

E. Aptalis's Construction For The "Ascending Melting Point" Limitations.

Three of Aptalis's Asserted Patent claims recite a temperature range for the "ascending melting point" of the suppository base material.[106] These limitations appear in the Asserted Patent claims in four formulations: two for claims reciting a melting point range for a "fatty base," and two for claims reciting a melting point range for an "oily or fatty base." The parties have agreed to construe these formulations as one consolidated term. Nevertheless, only Aptalis has proposed a construction for the term. Aptalis's definition is consistent with the intrinsic record that would inform a POSA how to measure the melting point of the base material before suppository formation, using the method mandated by USP <741>.

[105] USP <1151> Cocoa Butter Substitutes (2007), Ex. 10 at APT 1447 (emphasis added).

[106] These claims are '083 Patent claim 4, and '384 Patent claims 5 and 7.

Disputed Claim Terms:

"the [oily or] fatty base has an ascending melting point [ranging] from [*x*] to [*y*]° C"

where

Claims	*x*	*y*
'384 patent claim 4; '083 patent claim 3	**32**	**33.5**
'384 patent claim 5; '083 patent claim 4	**33**	**35.5**

Aptalis proposes:	**Mylan proposes:**
the [oily or fatty] base has an ascending melting point ranging from no less than [*x*] to no greater than [*y*]° C, as measured by USP 741 before it is incorporated into the suppository	No construction offered, because Mylan contends the term is indefinite because POSAs would not know when to measure ascending melting point, and if it is to be measured from the finished suppository, would not know how to measure it

Aptalis's construction makes it clear how (according to USP <741>) and when (before ingredients are mixed) a POSA should measure the ascending melting point. The intrinsic record supports the inclusion of these details in the construction.

1. The plain and ordinary meaning of the ascending melting point limitation encompasses the measurement method disclosed in USP <741>.

The USP has a single chapter devoted to measuring melting points—USP <741>. The Asserted Patents' specifications' incorporation of the USP, including Chapter 741, would inform a POSA that he or she should rely on Chapter 741 to measure the ascending melting point of the suppository base material.[107] In particular, a POSA would refer to Chapter 741's "Procedure for Class II."[108] This is because the USP classifies Hard Fat and other oily or fatty bases as "Class II" materials, and the USP's Hard Fat monograph indicates that one should determine the melting point according to one specific method: Chapter 741's procedure for Class II materials.[109]

[107] Allen Decl. ¶¶ 77-78 (ECF No. 64-1).

[108] Allen Decl. ¶ 78 (ECF No. 64-1).

[109] Hard Fat, NF (monograph) (2007), Ex. 5 (ECF No. 64-9) at APT 1436.

USP <741> explains that the "Procedure for Class II method" involves drawing the material into a capillary tube and then heating it at a rate of 0.5 to 1.0 per minute. USP <741> states: "The temperature at which the material is observed to rise in the capillary tube is the melting temperature."[110]

Other references that would have been known to a POSA would reinforce his or her use of the capillary-tube method disclosed in USP <741>. For example, a publication authored by Mylan's Dr. Block confirms that the "Open capillary tube determination of melting temperature … is most useful for verifying the melting point of excipients used in suppository manufacture."[111]

2. The intrinsic record makes it clear that one should measure the melting point of the base material before mixing it into the suppository.

A POSA would understand that he or she must confirm that the fatty or oily base material complies with the recited ascending melting point ranges ***before the suppository is formed***.[112]

A POSA would gain this understanding from the claim language. The asserted claims recite finished mesalamine rectal suppositories with certain properties made from ingredients with certain properties. These ingredients include:

1. Mesalamine that has a measured ***tap density*** within a certain range.
2. Suppository base material that has an ***ascending melting point*** within certain measured temperature ranges.

The recited ingredient properties are properties of the ingredients ***before*** one combines them into a suppository mixture. This is evident from the claim language. For example, claims 1 and 3 of the '083 patent (reproduced below) recite a finished

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[110] USP <741>, Ex. 8 (ECF No. 64-12) at APT-1426.

[111] *E.g.*, Exhibit F to the Block Decl., ECF No. 63-14 (in Case 13-4158) at 476, Figure 5. *See also* Responsive Allen Decl. ¶ 32 (ECF No. 90-1).

[112] Allen Decl. ¶¶ 75-76 (ECF No. 64-1).

"mesalamine rectal suppository" comprised of two ingredients: "mesalamine" and "an oily or fatty base." The claims recite properties for the mesalamine ingredient (highlighted in green), for the "oily or fatty base" (highlighted in blue), and for the finished suppository (highlighted in orange).

> "1. A mesalamine rectal suppository comprising mesalamine and an oily or fatty base, wherein the mesalamine has a tap density ranging from about 600 to about 800 g/L (as measured by USP <616>), the suppository has a drug load ranging from 35% to 50%, and the suppository releases at least about 75% by weight of the mesalamine within 2 hours of dissolution as measured with USP Apparatus #2 at 40° C., a paddle rotation speed of 125 rpm, and 3 sinker turns in 0.2 M phosphate buffer at a pH of 7.5."[113]

> "3. The mesalamine suppository of claim 1, wherein the oily or fatty base has an ascending melting point ranging from 32 to 33.5° C.[114]

The express language of the claims make it clear which properties are properties of the finished suppository, and which are properties of the ingredients before they are mixed to form the suppository.[115] Because there is no "mesalamine" or a "base" once one has combined all of the ingredients to create a suppository, the recited mesalamine and base properties (*i.e.*, the tap density for the mesalamine and the ascending melting point for the base material) must apply to the ingredients before they are mixed. The other properties recited in the claims—*i.e.,* drug load and mesalamine release rate—are properties for the mesalamine rectal suppository as a whole after mixing and casting.

A POSA would further understand from the specifications, in several different ways, that the claims contemplate that the measurement of the ascending melting point for the base material will occur before suppository formation. First, in the specifications, the Aptalis Inventors used language to distinguish a melting point range for the base material from a melting point for the suppository as a whole. For example, in the '384 specification,

[113] '083 Patent at 14:11-19 (claim 1), Ex. 2 (ECF No. 64-6).

[114] '083 Patent at 14:23-25 (claim 3), Ex. 2 (ECF No. 64-6).

[115] *See* Allen Decl. ¶¶ 29-40 (ECF No. 64-1).

in discussing the melting point for a cast suppository, the inventors wrote: "The melting point ***of the suppository*** is generally sufficient to melt in the patient's body, and is typically no more than about 37° C."[116] This is in contrast to the claim language that refers to the melting point of the base: "wherein ***the oily or fatty base*** has an ascending melting point from 33 to 33.5° C."[117]

Second, in explaining the purpose of the claimed inventions, the specifications indicate one can make a more comfortable and more therapeutically effective suppository by using, among other things, a "suppository base" with a lower melting point.[118]

Third, the specifications link the claimed ascending melting points to commercially available hard fats, such as "Witepsol® H12" and "Witepsol® H15." These disclosures make it clear that the recited ascending melting point ranges relate to starting materials (*e.g.*, Witepsol® grades H12 or H15) before they are mixed in with other suppository ingredients. For example:

- The specification describes "Witepsol® H12" hard fat as being "available from Sasol Germany GmbH of Witten, Germany" and as having the "ascending melting point of 32 to 33.5°C."[119]
- The specification describes "Witepsol® H15" hard fat as being "available from Sasol Germany GmbH of Witten, Germany" and as having the "ascending melting point of 33.5 to 35.5°C."[120]

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[116] *E.g.*, '384 Patent at 5:60-63, Ex. 1 (emphasis added).

[117] *See, e.g.,* '083 Patent at 14:26-28 (claim 4) (emphasis added).

[118] '384 Patent at 2:16-25, Ex. 1 (ECF No. 64-5); '083 Patent at 2:14-23, Ex. 2 (ECF No. 64-6).

[119] '384 Patent at 2:56-67, Ex. 1 (ECF No. 64-5); '083 Patent at 3:3-15, Ex. 2 (ECF No. 64-6). *See also*; '384 Patent at 4:41-45, Ex. 1 (ECF No. 64-5); '083 Patent at 4:51-55, Ex. 2 (ECF No. 64-6) ("FIG. 10 shows the dissolution profiles of mesalamine suppositories having drug loads of 42 and 44% prepared from mesalamine having a tap density of 730 g/L and hard fat having an ascending melting point of 32 to 33.5° C. (Witepsol® H-12).").

[120] '384 Patent at 2:56-67, Ex. 1 (ECF No. 64-5); '083 Patent at 3:3-15, Ex. 2 (ECF No. 64-6). *See also* '384 Patent at 4:36-40, Ex. 1 (ECF No. 64-5); '083 Patent at 4:51-55, Ex. 2 (ECF No. 64-6) ("FIGS. 4-9 show the dissolution profiles of mesalamine suppositories having drug loads of 33, 37, and 42% prepared from mesalamine having a tap density of 680 or

- The specification describes the claimed suppositories as "***prepared from*** … hard fat having an ascending melting point of 32 to 33.5°C (Witepsol® H12) or 33.5 to 35.5°C (Witepsol® H15)."[121]

F. Aptalis's Constructions For The Tap Density Limitations.

Twenty-five of Aptalis's Asserted Patent claims specify a "tap density" range for the mesalamine material one must use to make the claimed mesalamine rectal suppositories.[122] "Tap density" is a property of a pharmaceutical powder, and refers to "an increased bulk density achieved by mechanically tapping a measuring cylinder containing a powder sample."[123] "Tap density" is generally higher than the actual or bulk density of a powder (which is the density of the powder without tapping).

Aptalis's construction is consistent with the teachings in the intrinsic record. Mylan did not propose a construction, wrongly contending the limitations are indefinite.

Disputed Claim Terms:	
"the mesalamine has a tap density ranging from about 600 to about 800 g/L (as measured by USP <616>)"	
Aptalis proposes:	**Mylan proposes:**
The mesalamine has […] a tap density ranging from approximately 600 g/L to approximately 800 g/L as measured by USP 616 before the mesalamine is incorporated into the suppository	No construction offered because Mylan contends this term is indefinite because POSAs would not know when to measure tap density, and if it is to be measured from the finished suppository, would not know how to measure the property

730 g/L and hard fat having an ascending melting point of 33.5 to 35.5° C. (Witepsol® H-15).").

[121] *E.g.*, '384 Patent at 4:36-40, Ex. 1 (ECF No. 64-5); '083 Patent at 4:51-55, Ex. 2 (ECF No. 64-6) (emphasis added).

[122] These claims are: '083 Patent claims 1, 4, 6-13, 17 and 18; and '384 Patent claims 1-3, 5, and 7-16.

[123] USP <616> (2007), Ex. 6 (ECF No. 64-10) at APT 1412.

As discussed above in Section IV.B, a POSA would have understood "about 600 to about 800" to mean "approximately 600 to approximately 800," which would encompass scientifically acceptable variability around the recited numerical values.[124] A POSA would be able to determine the amount of variation associated with the term "about" by considering the specifications, the precision of the testing method and equipment used to determine tap density, and/or the acceptable deviations associated with repeated measurements.

Aptalis's construction makes it clear that one should measure the tap density of the mesalamine ingredient before it is mixed with the base material. The intrinsic record supports incorporating this clarification into the construction.

1. The intrinsic record expressly recites the industry-standard method for measuring mesalamine tap density—USP <616>.

Aptalis's Asserted Patent claims expressly recite "USP <616>" as the method for measuring mesalamine tap density.[125] In addition, the specifications incorporate the entire USP, including Chapter 616. Chapter 616 provides step-by-step instructions for how to measure tap density. Thus, a POSA would know to use the methods and techniques discussed in Chapter 616 to measure tap density of the mesalamine ingredient claimed in Aptalis's patent claims.[126]

Mylan apparently contends a POSA would not understand how to use Chapter 616 to measure tap density. To the contrary, a POSA easily would be able to use Chapter 616's step-by-step procedures.

The USP expressly states that one should measure "tap density" according to "Method

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[124] Allen Decl. ¶¶ 57-58, 84.

[125] *See, e.g.,* '083 Patent at 14:12-14 (claim 1), Ex. 2 (ECF No. 64-6) (reciting that the mesalamine must have a "tap density ranging from about 600 to about 800 g/L (as measured by USP <616>)."

[126] Allen Decl. ¶ 51, 79 (ECF No. 64-1).

I" "unless otherwise specified."[127] Aptalis's patents do not "otherwise specify." The USP's discussion of Method I provides all the guidance a POSA would need to properly measure tap density:

- It specifies the tap height one should use: "fixed drop height of 14 ± 2 mm."[128]
- It specifies the number of taps and duration one should use: "tap the cylinder 500 times initially" at a "nominal rate of 300 drops per minute."[129]
- It specifies the tap direction one should use: allowing the sample "to drop under its own weight."[130]

Chapter 616 also provides guidance on how to produce accurate and reproducible results that can be compared across different laboratories conducting tap density testing in accordance with USP <616>. For example, USP <616> teaches one to "[r]epeat the tapping an additional 750 times" until the difference is "less than 2%."[131] If the measurements still differ by more than 2%, the chapter further instructs one to "[r]epeat in increments of 1250 taps, as needed, until the difference between succeeding measurements is less than 2%."[132] This quality control built into the USP <616> measurement method ensures accuracy of the measurement and belies Mylan's assertion that the USP <616> testing performed by different laboratories may produce inconsistent results.[133] Finally, one could expect the second tap density method discussed in USP <616> to produce results that are substantially similar to those produced by use of the default Method I. Method II differs from Method I in that the drop height is 3 mm instead of 14 mm. But because, in either

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[127] USP <616>, Ex. 6 (ECF No. 64-10) at APT-1413; Responsive Allen Decl. ¶¶ 46-47 (ECF No. 90-1).

[128] USP <616>, Ex. 6 (ECF No. 64-10) at APT-1413.

[129] *Id.*

[130] *Id.*

[131] *Id.*

[132] *Id.*

[133] Responsive Allen Decl. ¶¶ 47-50 (ECF No. 90-1).

case, the USP instructs to repeat the tapping until the volume measurement does not change by more than 2%, the two methods ultimately should produce the same tap density value.[134]

Indeed, given the disclosures in USP <616>, it is difficult to imagine a POSA not being able to execute the industry-standard procedures set forth in one of the field's essential references.[135]

2. The intrinsic record indicates the recited tap density property is a property of the mesalamine ingredient before the mesalamine is mixed into a suppository.

Aptalis's patents also are clear about ***when*** one should use the methods disclosed in USP <616> to measure tap density. As discussed in Section V.E.2 above, the claims expressly relate the recited tap density property to the "mesalamine" and "mesalamine particles" ingredients, and not to the finished suppository.

Moreover, multiple passages in the specifications indicate one should measure tap density ***before*** the mesalamine material is mixed into a suppository. For example, the '083 specification expressly states:

- "The tap density of the mesalamine ***used to prepare*** the molten mesalamine dispersion is also preferably ***monitored before production*** to ensure that the tap density of the mesalamine is at least about 600 g/L and preferably from about 600 to about 800 g/L."[136]
- "FIGS. 4-9 show the dissolution profiles of mesalamine suppositories having drug loads of 42 and 44% ***prepared from mesalamine having a tap density of 680 or 730 g/L*** and hard fat having an ascending melting point of 32 to 33.5° C. (Witepsol® H-12)."[137]

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[134] Responsive Allen Decl. ¶ 49 (ECF No. 90-1).

[135] Allen Decl. ¶ 51 (ECF No. 64-1).

[136] '083 Patent at 6:42-46, Ex. 2 (ECF No. 64-6) (emphasis added). *See also* '384 Patent at 6:25-29, Ex. 1 (ECF No. 64-5).

[137] '083 Patent at 4:51-55, Ex. 2 (ECF No. 64-6) (emphasis added). *See also* '384 Patent at 4:36-40, Ex. 1 (ECF No. 64-5).

Furthermore, in summarizing the inventions, the specifications explain that the inventions relate to controlling properties (such as tap density) of ***starting*** materials to ensure that the molten suppository mixture is not too viscous, and can be "cast to form the suppository."[138] Given this stated purpose, it would make no sense to measure tap density after the casting of the suppository.[139]

G. Aptalis's Construction For Drug Load Limitations Modified By "About."

The specification defines "drug load" as "the weight percentage of mesalamine based on the total weight of the suppository."[140] The parties agree on constructions for all drug load limitations except those that include "about" as a modifier of the recited range. As discussed above, the Court should construe "about" in these limitations as "approximately."

Disputed Claim Term:

"the mesalamine suppository … wherein the drug load ranges from about [*x*] to about [*y*]%"

where

Claims	*x*%	*y*%
'384 patent claim 8; '083 patent claim 6	**39%**	**45%**
'384 patent claim 9; '083 patent claim 7	**41%**	**43%**

Aptalis proposes:	**Mylan proposes:**
The mesalamine suppository … wherein the drug load ranges from approximately [*x*] to approximately [*y*]%	No construction offered.

As discussed above in Section IV.B, a POSA would have understood "about" to mean "approximately," and that a recited range of "from about [*x*] to about [*y*]%" means "from approximately [*x*] to approximately [*y*]%" and encompasses scientifically acceptable

[138] '083 Patent at 2:24-31, Ex. 2 (ECF No. 64-6). *See also* '384 Patent at 2:26-32, Ex. 1 (ECF No. 64-5).

[139] Allen Decl. ¶¶ 30, 80-83 (ECF No. 64-1).

[140] '384 Patent at 4:56-57, Ex. 1; '083 Patent at 5:4-5, Ex. 2.

variability around the recited numerical values.[141] This proposed construction reflects the ordinary and customary meaning of the term "about."

Mylan has not offered any constructions for these terms. Mylan previously argued that any claim term containing "about" was indefinite. However, Mylan failed to assert an "about" indefiniteness defense in its Preliminary Invalidity Contentions and, as discussed above, Judge Goodman denied Mylan's request for leave to amend its contentions to include the argument and ordered Mylan "to refrain from including in its new briefing any indefiniteness arguments related to 'about' or [its interpretation as] 'approximately'."[142] Thus, Mylan is precluded from arguing that any claim terms are indefinite because of the presence of "about" and from proposing, at this late stage, any construction of "about."

H. Aptalis's Constructions For The Release Rate Limitations.

Nine of Aptalis's Asserted Patent claims recite a number of minutes or hours by which the suppository should release a specified amount of the mesalamine active ingredient under specific dissolution test conditions.[143] Aptalis's Asserted Patent claims recite several forms of such release rate limitations. The limitations primarily vary in terms of their different combinations of a recited release rate value and associated time period. To simplify the discussion, we have organized the discussion into two sections. The first concerns Aptalis's construction of the measurement conditions that the release rate limitations recite. The second section explains the basis and support for Aptalis's constructions for the two different styles of the release rate terms.

As the discussion below demonstrates, only Aptalis's proposed constructions are consistent with the intrinsic record.

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[141] Allen Decl. ¶ 87.

[142] 4/20/15 Order at 21, ECF No. 131.

[143] These claims are: '384 Patent claims 1, and 10-12, and '083 Patent claims 1, 8-10, and 17.

1. The release rate measurement conditions.

Disputed Claim Term:	
"the suppository releases … mesalamine … as measured with USP Apparatus #2 at 40° C., a paddle rotation speed of 125 rpm, and 3 sinker turns in 0.2 M phosphate buffer at a pH of 7.5"	
Aptalis proposes: the suppository releases … mesalamine … as measured in accordance with USP 711 with USP Apparatus #2 at 40° C., a paddle rotation speed of 125 rpm, and 3 sinker turns in 900 mL of 0.2 M phosphate buffer at a pH of 7.5	**Mylan proposes:** "plain and ordinary meaning" without offering further definition

Aptalis's construction specifies that one should measure release rates according to USP <711>. This comes directly from the intrinsic record. The claims expressly refer to "USP Apparatus #2." "USP Apparatus #2 is the "Paddle Apparatus" discussed in USP <711>—the USP chapter describing industry-standard dissolution tests.[144] USP <711> identifies the required apparatuses for measuring dissolution rates of pharmaceutical products, details procedures to use for each type of apparatus, and provides information concerning how one should interpret measurement results. Given the direct reference in the claims to "USP Apparatus #2," the specifications' incorporation of the USP as a whole, and the specifications' specific incorporation of Chapter 711,[145] a POSA would know to use USP <711> to measure the release/dissolution rates for the claimed suppositories.[146]

More particularly, the specification indicates that a POSA should rely on the

[144] Allen Decl. ¶ 89 (ECF No. 64-1).

[145] *See* '384 Patent at 3:55-4:2, Ex. 1 (ECF No. 64-5); '083 Patent at 4:3-18, Ex. 2 (ECF No. 64-6) (referring to "USP 711 (30th Ed.)"); *see also* '384 Patent at 14:6-9, Ex. 1 (ECF No. 64-5); '083 Patent at 14:5-9, Ex. 2 (ECF No. 64-6) ("All non-patent references, patents and patent applications cited and discussed in this specification are incorporated herein by reference in their entirety and to the same extent as if each was individually incorporated by reference.").

[146] Allen Decl. ¶¶ 89-91 (ECF No. 64-1).

procedures in Chapter 711 relating to "immediate release dosage forms."[147] At the time of Aptalis's inventions, the USP did not have a specific release protocol for suppositories. However, the claim language particularly provides, when read in view of the specification, the details a POSA would need to conduct a dissolution test according to the USP protocol for immediate release dosage forms—*i.e.*, using "USP Apparatus #2 at 40° C," using a "rotation speed of 125 rpm," and using "3 sinker turns in 0.2 M phosphate buffer at a pH of 7.5."[148]

In addition, USP <711> indicates the standard universal buffer volume is 900 mL (the standard volume used with the standard 1 L vessel).[149] Numerous additional articles and industry guidance confirm this. For example, the FDA guidance for dissolution testing of mesalamine suppositories states to use a volume of 900 mL.[150]

2. Claim terms reciting release rates.

The Asserted Patents recite two formulations of the release rate limitations. All use the same measurement conditions discussed in the preceding section.

[147] *E.g.*, '384 Patent at 3:55-4:2, Ex. 1 (ECF No. 64-5); '083 Patent at 4:3-18, Ex. 2 (ECF No. 64-6) ("Preferably, step (B) includes determining whether the suppository releases at least about 75 or 80% by weight of the mesalamine within 2 hours of dissolution (Q=75% as ***described in USP 711 (30th Ed.), the section entitled 'immediate-release dosage forms'***)."") (emphasis added).

[148] Allen Decl. ¶ 95 (ECF No. 64-1). *See also, e.g.,* '083 Patent at 14:15-20, Ex. 2 (ECF No. 64-6) (claim 1).

[149] *See also* SDZ-MES 22276 (USP <1092>), Ex. 30 (ECF No. 90-15) (stating that 900 mL "is the most common volume").

[150] Responsive Allen Decl. ¶¶ 69 (ECF No. 90-1).

Release rate limitations using "at least [*x*]% by weight" phrasing

Disputed Claim Term:

"the suppository releases at least [*x*]% by weight of the mesalamine within [*y*] of dissolution"

where

Claims	*x*%	*y* time
'384 patent claim 1	**75%**	**2 hours**
'384 patent claim 10	**80%**	**2 hours**
'384 patent claim 11	**80%**	**1 hour**
'384 patent claim 12; '083 patent claim 10	**90%**	**30 minutes**

Aptalis proposes:	**Mylan proposes:**
the suppository releases no less than [*x*]% by weight of the mesalamine within [*y* hours/minutes] of dissolution, as described in USP 711, the section entitled "immediate release dosage forms"	the suppository releases no less than [*x*]% by weight of the mesalamine by the end of [*y* hours/minutes] of dissolution

Release rate limitations using "at least about [*x*]% by weight" phrasing

Disputed Claim Term:

"the suppository releases at least about [*x*]% by weight of the mesalamine within [*y*] of dissolution"

where

Claims	*x*%	*y* time
'083 patent claims 1, 17	**75%**	**2 hours**
'083 patent claim 8	**80%**	**2 hours**
'083 patent claim 9	**80%**	**1 hour**

Aptalis proposes:	**Mylan proposes:**
the suppository releases at least approximately [*x*]% by weight of the mesalamine within [*y*] of dissolution as described in USP 711, the section entitled "immediate release dosage forms"	No construction offered.

Aptalis's constructions for these highly similar classes of limitations frame the recited release rates or release rate ranges with "no less than" and "no greater than" modifiers, and indicate that one should measure release rates according to the procedures for "immediate release dosage forms" detailed in USP Chapter 711, which is incorporated into the specifications as detailed above.

Mylan has not offered any construction for the release rate limitation that employs "about." Mylan previously argued that any claim term containing "about" was indefinite. However, Mylan failed to assert an "about" indefiniteness defense in its Preliminary Invalidity Contentions and, as discussed above, Judge Goodman denied Mylan's request for leave to amend its contentions to include the argument and ordered Mylan "to refrain from including in its new briefing any indefiniteness arguments related to 'about' or [its interpretation as] 'approximately'."[151] Thus, Mylan is precluded from arguing that any claim terms are indefinite because of the presence of "about," and from proposing, at this late stage, any construction of "about."

I. Aptalis's Construction Of The Amount Of Mesalamine Limitations.

Some asserted claims specify an amount of mesalamine contained in the recited suppository. These limitations recite a range modified by "about." As discussed in Section V.B above, a POSA would have understood "about" to mean "approximately" and that a recited range of, for example, "approximately 850 to approximately 1150 mg" merely reflects scientifically acceptable variability around the recited range.[152]

[151] 4/20/15 Order at 21, ECF No. 131.

[152] Allen Decl. ¶¶ 57-58 (ECF No. 64-1).

Disputed Claim Term:		
"from about [*x*] to about [*y*] mg" ***where***		
Claims	***x***	***y***
'384 patent claim 1	**850**	**1150**
'384 patent claim 2	**950**	**1050**
Aptalis proposes: from approximately [*x*] to approximately [*y*] mg	**Mylan proposes:** No construction offered.	

Mylan has not offered any constructions for these terms. Mylan previously argued that any claim term containing "about" was indefinite. However, Mylan failed to assert an "about" indefiniteness defense in its Preliminary Invalidity Contentions and, as discussed above, Judge Goodman denied Mylan's request for leave to amend its contentions to include the argument and ordered Mylan "to refrain from including in its new briefing any indefiniteness arguments related to 'about' or [its interpretation as] 'approximately'."[153] Thus, Mylan is precluded from arguing that any claim terms are indefinite because of the presence of "about," and from proposing, at this late stage, any construction of "about."

VI. Summary Of Agreed Upon And Proposed Constructions.

A. Constructions Agreed Upon By The Parties.

Aptalis and Mylan have agreed on the construction of the terms set forth below. These terms do not require the Court's construction.

[153] 4/20/15 Order at 21, ECF No. 131.

Exemplary Claim	Claim Term	Agreed Construction
'083 claim 1	mesalamine	5-aminosalicylic acid (5-ASA)
'083 claim 11	treating ulcerative proctitis	(a) preventing or delaying the appearance of; (b) inhibiting, arresting or reducing the development of; or (c) relieving, or causing regression of, the disease or condition of active ulcerative proctitis, or at least one of its clinical or subclinical symptoms
'083 claim 1	the suppository has a drug load ranging from 35% to 50%	the weight percentage of the mesalamine in the suppository is no less than 35% and no greater than 50%, based on the total weight of the suppository
'384 claim 1	drug load of the suppository ranges from 35 to 46%	the weight percentage of the mesalamine in the suppository is no less than 35% and no greater than 46%, based on the total weight of the suppository

B. Aptalis's Proposed Constructions Of Disputed Terms.

Set forth below is a summary of Aptalis's proposed constructions for those claim terms that remain in dispute. The terms are grouped by limitation.

Exemplary Claim(s)	Claim Term	Aptalis's Construction
Mesalamine Rectal Suppository Limitations		
'083 claims 1, 8	mesalamine rectal suppository the mesalamine suppository the suppository	a suppository comprising mesalamine, USP, for rectal administration to a patient

Exemplary Claim(s)	Claim Term	Aptalis's Construction
Oily or Fatty Base Ascending Melting Point Limitations		
'083 claim 1	an oily or fatty base	base that can be oily, fatty or both
'384 claim 4	the [oily or] fatty base has an ascending melting point [ranging] from [*x*] to [*y*]° C	the [oily or fatty] base has an ascending melting point ranging from no less than [*x*] to no greater than [*y*]° C, as measured by USP 741 before it is incorporated into the suppository
Tap Density Limitations		
'083 claim 1	the mesalamine has a tap density ranging from about 600 to about 800 g/L (as measured by USP <616>)"	the mesalamine has a tap density ranging from approximately 600 g/L to approximately 800 g/L as measured by USP 616 before the mesalamine is incorporated into the suppository
Drug Load Limitations		
'083 claim 6	the mesalamine suppository … wherein the drug load ranges from about 39 to about 45%"	The mesalamine suppository … wherein the drug load ranges from approximately 39 to approximately 45%
'083 claim 7	the mesalamine suppository … wherein the drug load ranges from about 41 to about 43%"	The mesalamine suppository … wherein the drug load ranges from approximately 41 to approximately 43%
Release Rate Limitations		
'384 claim 1	the suppository releases … mesalamine … as measured with USP Apparatus #2 at 40° C., a paddle rotation speed of 125 rpm, and 3 sinker turns in 0.2 M phosphate buffer at a pH of 7.5	the suppository releases … mesalamine … as measured in accordance with USP 711 with USP Apparatus #2 at 40° C., a paddle rotation speed of 125 rpm, and 3 sinker turns in 900 mL of 0.2 M phosphate buffer at a pH of 7.5

Exemplary Claim(s)	Claim Term	Aptalis's Construction
384 claim 1 '384 claim 10 '384 claim 11 '384 claim 12	the suppository releases at least [*x*]% by weight of the mesalamine within [*y* minutes/hour(s)] of dissolution	the suppository releases no less than [*x*]% by weight of the mesalamine within [*y* minutes/hour(s)] of dissolution, as described in USP 711, the section entitled "immediate release dosage forms"
'083 claim 1 '083 claim 8 '083 claim 17	the suppository releases at least about [*x*]% by weight of the mesalamine within [*y* hours/minutes] of dissolution	the suppository releases at least approximately [*x*] by weight of the mesalamine within [*y* hours/minutes] of dissolution as described in USP 711, the section entitled "immediate release dosage forms"
Amount of Mesalamine Limitations		
'384 claim 1	from about 850 to about 1150 mg	from approximately 850 to approximately 1150 mg
'384 claim 2	from about 950 to about 1050 mg	from approximately 950 to approximately 1050 mg

VII. Conclusion.

The Court should construe the terms according to their plain and ordinary meaning, as understood by a POSA at the time of the inventions in view of the intrinsic evidence. Only Aptalis has offered constructions that meet that fundamental principle of claim construction. In seeking alternative constructions, Mylan has refused to acknowledge the USP industry standards and other intrinsic evidence that a POSA would rely on in

interpreting Aptalis's patent claims. Thus, Aptalis respectfully requests that the Court adopt Aptalis's proposed constructions.

Dated: May 15, 2015

Respectfully submitted,

By: /s David E. De Lorenzi

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Certification Of Service

I hereby certify that on May 15, 2015, copies of **Aptalis's Opening Claim Construction Brief** and supporting documents were served via email upon upon all counsel of record.

I certify that the foregoing statements made by me are true. I am aware that if any of the statements made by me are willfully false, I am subject to punishment.

s/ David E. De Lorenzi
David E. De Lorenzi

Dated: May 15, 2015